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Atty. Dkt. No. SAR 14882**REMARKS**

This is intended as a full and complete response to the Office Action dated June 14, 2004, having a shortened statutory period for response set to expire on September 14, 2004. Please reconsider the claims pending in the application for reasons discussed below.

Claims 1 - 26 remain pending in the application and are shown above. Claims 1-6, 10-12, 14-16, 19-22 and 24 stand rejected. Reconsideration of the rejected claims is requested for reasons presented below.

I. Claim Rejections under 35 U.S.C. § 103

Claims 1-6, 10-12, 14-16, 19-22 and 24 stand rejected under 35 USC § 103 in view of Ishida et al (US Patent Publication 2001/0040505A1 dated November 15, 2001) (Ishida) in view of Saban et al (US. Patent 5,448,233 issued September 5, 1995) (Saban). Applicants respectfully traverse the rejection.

Ishida discloses a navigation device for assisting a driver of a vehicle to drive safely by presenting accurate information at the right time what is occurring around his/her vehicle. "An obstacle detection part detects any obstacle with the help of external information monitored by an external monitor part. By utilizing the vehicle's current position detected by an input part and a position detection part, and map data stored in a map data storage part, a route selection part searches for a route to a destination." (See Ishida Abstract)

The Examiner concedes that Ishida fails to disclose that processing the depth map is to identify regions that do not exceed mobility constraint for a vehicle, and regions that do exceed the mobility constraint of the vehicle. In order to cure the deficiency perceived by the Examiner, Saban is cited by the Examiner.

Saban discloses "an airborne obstacle collision avoidance apparatus which includes an object sensor for sensing objects within a field of view of the aircraft and an aircraft navigation system for navigating the aircraft through space. The apparatus also includes a signal processor for receiving data from both the object sensor and the aircraft navigation system, for generating map data of the objects within the field of view of the aircraft, for dynamically changing the map data as the aircraft moves through

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space and for determining the probability that the aircraft is on a collision course with respect to each sensed object. The apparatus further includes an alarm which is activated when the signal processor determines that there is a high probability that the current aircraft flight direction is on a collision course with respect to a sensed object.”
(See Saban Abstract)

The Examiner's attention is directed to the fact that neither Ishida nor Saban teach or disclose “processing the depth map to identify regions that do not exceed a mobility constraint for a vehicle, and regions that do exceed the mobility constraint of the vehicle”, as positively claimed by the Applicant. As such, a combination of the teachings of Ishida and Saban cannot teach processing of a depth map to identify such regions. Applicants' independent claims 1, 10, and 19 positively recite:

1. A method of detecting obstacles comprising:
producing a depth map of a scene containing terrain; and
processing the depth map to identify regions that do not exceed a mobility constraint for a vehicle, and regions that do exceed the mobility constraint of the vehicle. (emphasis added)
10. Apparatus for detecting obstacles comprising:
a stereo image processor for producing stereo imagery of a scene containing terrain;
a depth map generator for processing the stereo imagery and producing a depth map; and
a depth map processor for processing the depth map to identify regions that do not exceed a mobility constraint for a vehicle, and regions that do exceed the mobility constraint of the vehicle. (emphasis added)
19. An obstacle detecting system comprising:
a vehicle having a movement system for moving the vehicle across a terrain;
a stereo image processor mounted to the vehicle, the stereo image processor for producing stereo imagery of a scene containing the terrain;
a depth map generator for processing the stereo imagery and producing a depth map; and
a depth map processor for processing the depth map to identify regions that do not exceed a mobility constraint for the vehicle, and regions that do exceed the mobility constraint of the vehicle. (emphasis added)

Applicants' invention discloses a method and apparatus for detecting obstacles in non-uniform environments, e.g., an off-road terrain application. The method uses a depth map in order to detect obstacles. In one embodiment, the method utilizes a depth

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map having a point cloud that represents the depth to objects within the field of view of stereo cameras. The method does not recognize specific objects but labels areas that are difficult or impossible to traverse.

Neither Ishida nor Saban teaches the identification of regions that do not exceed a mobility constraint for a vehicle, and regions that do exceed the mobility constraint of the vehicle. Ishida teaches that "an obstacle detection part detects any obstacle observed outside of the vehicle, and outputs external information including position information of the obstacle." (Ishida, paragraph 0009, lines 9-12) Saban teaches an "object sensor means for sensing objects within a field of view of the aircraft". (Saban, col. 1, lines 28-29) Applicants' invention teaches the identification of regions that exceed or do not exceed the mobility constraint for a vehicle. Since Ishida and Saban teach only the sensing of objects, the cited references do not render obvious Applicants' claims.

Applicants submit that Ishida and Saban either individually or in any reasonable combination do not render Applicant's independent claims 1, 10, and 19 obvious. In addition, dependent claims 2-6, 11, 12, 14-16, 20-22, and 24 are also non-obvious, at least for their dependency upon their respective base claim. As such, Applicant requests reconsideration and withdrawal of the 35 U.S.C. §103 rejection.

II. Allowable Subject Matter

Applicants thank the Examiner for indicating allowable subject matter in claims 7-9, 13, 17, 18, 23, 25, and 26. Claims 7-9, 13, 17, 18, 23, 25, and 26 were objected to as being allowable but depending from a rejected base claim. Applicants thank the Examiner for indicating the conditional allowability of such subject matter, but have hereinabove provided arguments refuting the rejections of the independent claims. Thus, no changes to the dependent claims are made at this time.

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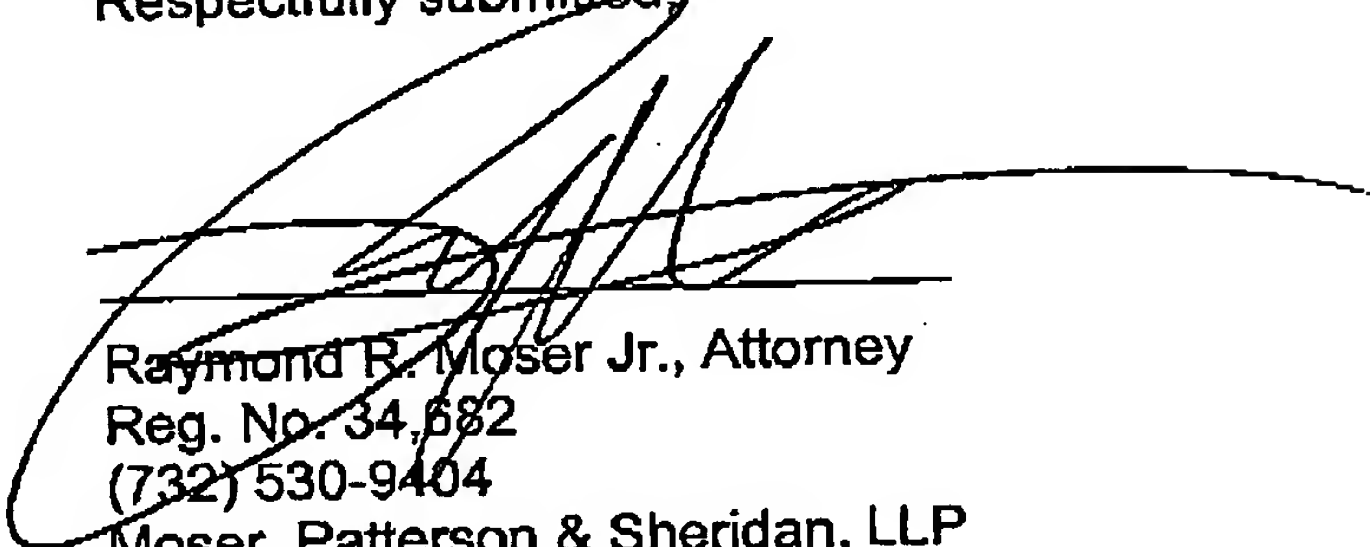
CONCLUSION

Thus, the Applicants submit that all of these claims now fully satisfy the requirements of 35 U.S.C. §103. Consequently, the Applicants believe that all these claims are presently in condition for allowance. Accordingly, both reconsideration of this application and its swift passage to issue are earnestly solicited.

If, however, the Examiner believes that there are any unresolved issues requiring the issuance of a final action in any of the claims now pending in the application, it is requested that the Examiner telephone Mr. Thomas Bethea, Jr., Esq. at (732) 530-9404 so that appropriate arrangements can be made for resolving such issues as expeditiously as possible.

Respectfully submitted,

9-14-04
Date


Raymond R. Moser Jr., Attorney
Reg. No. 34,582
(732) 530-9404
Moser, Patterson & Sheridan, LLP
595 Shrewsbury Avenue
Shrewsbury, New Jersey 07702

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